CLAIMS

What is claimed is:

1. A drilling assembly in a drill string for drilling an earth formation, said drilling assembly being operable for applying a substantially continuous force on a drill bit during drilling operations to thereby maintain said drill bit in contact with said earth formation, said drilling assembly being threadably connectable utilizing a drilling rig, said drilling assembly comprising:

a first outer tubular;

a first threaded connector secured with respect to said first outer tubular;

a first threaded connector force transfer member mounted for axial movement within.said first threaded connector, said first threaded connector force transfer member being operable for transmitting at least a portion of said substantially continuous force through said first threaded connector;

a second outer tubular;

a second threaded connector secured with respect to said second outer tubular; and

a second threaded connector force transfer member mounted for axial movement within said second threaded connector, said first threaded connector and said second threaded connector being threadably connectable utilizing said drilling rig, and after said first threaded connector and said second threaded connector are connected utilizing said drilling rig, then said second force transfer

member is mechanically interconnected with said first force transfer member for receiving said at least a portion of said substantially continuous force.

2. The drilling assembly of claim 1, wherein said first outer tubular is in tension rather than compression when said substantially continuous force is applied to said drill bit during said drilling operations.

3 The drilling assembly of claim 1, further comprising:

a first force transfer member axially mounted within said first outer tubular and being axially moveable with respect to said first outer tubular, and

a second force transfer member axially mounted within said second outer tubular and being axially moveable with respect to said first outer tubular,

said first force transfer member, said first threaded connector force transfer member, said second threaded connector force transfer member, and said second force transfer member being interconnected after said first threaded connector and said second threaded connector are threadably connected for transmitting said at least a portion of said substantially continuous force.

4. The drilling assembly of claim 3, wherein said first transfer member comprises an annular weight section having a specific gravity greater than 10.0, said annular weight section creating at

least a portion of said force for transfer through said threaded connector by said first threaded connector force transfer member.

5. The drilling assembly of claim 1, further comprising a first force transfer assembly axially mounted within said first outer tubular and being axially moveable with respect to said first outer tubular, at least a portion of said first force transfer assembly being temperature sensitive for controlling movement of said first force transfer assembly within said first outer tubular.

6. The drilling assembly of claim 1, further comprising a first force transfer member axially mounted within said first outer tubular and being axially moveable with respect to said first outer tubular with at least a portion thereof being temperature sensitive, and a temperature compensated centralizer for centralizing said first force transfer member within said first outer tubular.

7. A method for drilling a borehole in an earth formation with a drill pipe string, said drill pipe string comprising a drilling assembly and a drill bit, said method comprising:

connecting together a plurality of threaded connections associated with a plurality of tubulars utilizing a drilling rig to thereby form said drilling assembly;

providing a respective slidable force transfer section within one or more of said plurality of tubulars;

transferring a force through each respective force transfer section toward said bit through said plurality of threaded connections such that said force is applied to said drill bit during drilling of said borehole; and

and holding one or more of said plurality of tubulars in tension with said drill pipe string during said drilling of said borehole.

8. The method of claim 7, further comprising providing that each of said slidable force transfer sections comprise high density material with a specific gravity greater than 10.0, said force applied to said drill bit comprising a cumulative weight of said each slidable force transfer section.

9. A drilling assembly for use in a bottom hole drilling assembly for drilling a bore hole through an earth formation with a drill bit, said drilling assembly being securable to a drill pipe string, said drilling assembly being operable for applying drilling weight to said drill bit, said drilling assembly comprising:

a first outer tubular;

a first top sub secured with respect to said first outer tubular;

a first bottom sub secured with respect to said first outer tubular;

a first high density weight section mounted within said first outer tubular to supply at least a portion of said drilling weight to said drill bit, said first high density weight section comprising material with specific gravity greater than 10.0, said first high density weight section being slidably mounted with respect to said first outer tubular to permit axial movement of said first high density weight section with respect to said first outer tubular, said first top sub and said first bottom sub.

10. The drilling assembly of claim 9, wherein said first high density weight section comprises a tungsten compound containing no cobalt.

11. The drilling assembly of claim 9, wherein said first high density weight section is mounted adjacent said first outer tubular such that an annulus is formed therebetween.

12. The drilling assembly of claim 11, further comprising a centralizer positioned within said annulus to prevent radial movement of said first high density weight section.

13. The drilling assembly of claim 9, further comprising:

a second outer tubular, said second outer tubular being securable with respect to said first bottom sub;

a second high density weight section comprising material with a specific gravity greater than

10.0, said second high density weight section being slidably mounted to permit axial movement with respect to said second outer tubular; and

a weight transmission element extending through said first bottom sub and being slidable for axial movement with respect to said first bottom sub, said weight transmission element being mounted for supporting a first weight of said first high density weight section.

14. The drilling assembly of claim 13, wherein said weight transmission element is mounted to apply said first weight of said first high density weight section to said second high density weight section.

15. The drilling assembly of claim 9, wherein said drilling assembly is statically balanced.

16. The drilling assembly of claim 15, further comprising a plurality of weight elements wherein each weight element may be mounted in a selectable rotational position.

17. A drilling assembly for for drilling a bore hole through an earth formation, said drilling assembly comprising a drill bit, said drilling assembly being secured to a drill pipe string, said drilling assembly being operable for applying drilling weight to said drill bit, said drilling assembly comprising:

a first outer tubular, said first outer tubular having an outer tubular wall thickness;

a first top sub secured with respect to said first outer tubular;

a first bottom sub secured with respect to said first outer tubular; and

a first plurality of annular high density weight sections mounted inside said first outer tubular for supplying at least a portion of said drilling weight, said plurality of annular weight sections being stacked with respect to each other to provide a weight section tubular wall thickness at least 25% greater than said outer tubular wall thickness, each of said first plurality of annular high density weight sections having a specific gravity greater than 10.0.

18. The drilling assembly of claim 17, wherein said weight section tubular wall thickness is at least 50% greater than said outer wall thickness.

19. The drilling assembly of claim 17, wherein each of said first plurality of annular high density weight sections comprises a tungsten compound containing no cobalt.

20. The drilling assembly of claim 17, further comprising a centralizer positioned between said first plurality of annular high density weight sections and said first outer tubular to prevent said radial movement of said first plurality of annular high density weight sections with respect to said first outer tubular.

21. The drilling assembly of claim 17, further comprising a first inner tubular defining a fluid flow path therethrough.

22. The drilling assembly of claim 21, further comprising a seal for fluid tight sealing between said first inner tubular and said first plurality of annular high density weight section.

23. The drilling assembly of claim 17, wherein said first annular high density weight section is mounted slidably mounted to permit axial movement of said first high density weight section with respect to said first outer tubular.

24. The drilling assembly of claim 23, further comprising:

a second outer tubular, said second outer tubular being securable with respect to said first bottom sub,

a second plurality of annular high density weight sections slidably mounted within said second outer tubular to permit axial movement with respect to said second outer tubular, and

a weight transmission element extending through said first bottom sub and being slidable for axial movement with respect to said first bottom sub, said weight transmission element being mounted for transferring a weight of said first plurality of annular high density weight sections to said second plurality of annular high density weight sections.

25. A drilling assembly for use in drilling a borehole, said drilling assembly comprising:

an outer tubular;

an upper sub;

a lower sub;

a tungsten alloy high density section mounted within said outer tubular, said upper sub, and said lower sub, said tungsten alloy comprising no cobalt.

26. The drilling assembly of claim 25, wherein said tungsten alloy comprises greater than ninety percent tungsten.

27. The drilling assembly of claim 26, wherein said tungsten alloy further comprises nickel, iron, and molybdenum.

28. A directional drilling bottom hole assembly for drilling a borehole section through an earth formation, said borehole section having a varying directional angle, said directional drilling bottom hole assembly comprising:

a drill bit;

a mud motor for rotating said drill bit;

a bent sub secured with respect to said mud motor;

a flexible weight section operable for applying a weight to said drill bit, said flexible weight section comprising,

an outer tubular,

an inner tubular, said outer and inner tubular forming a compartment therebeteween, said outer tubular and said inner tubular being bendable such for conforming to said varying directional angle, and

a bendable tungsten weight section within said outer tubular and inner tubular for supplying a substantial portion of said weight to said drill bit.

29. The directional drilling bottom hole assembly of claim 28, wherein said bendable tungsten weight section further comprises a powder or tungsten slurry.

30. The directional drilling bottom hole assembly of claim 28, wherein said inner tubular and said outer tubular are comprised of nonmagnetic materials.

31. The directional drilling assembly of claim 30, wherein said bendable tungsten weight section is substantially nonmagnetic or completely nonmagnetic.

32. A method of making a drilling assembly for drilling a wellbore within an earth formation,

said drilling assembly comprising at least one tubular and at least one tungsten weight section, said method comprising:

providing said at least one tubular and said at least one tungsten weight section with respective annular engagement surfaces;

providing that a dimension of said respective annular engagement surfaces is sized to just prevent interconnection of said at least one tubular and said at least one tungsten weight section when said at least one tubular and said at least one tungsten weight section are approximately the same temperature;

providing a temperature difference greater than several hundred degrees Fahrenheit between said at least one tubular and said at least one tungsten weight whereby said dimension is then sized to permit interconnection of said at least one tubular and said at least one tungsten weight section;

interconnecting said at least one tubular and said at least one tungsten weight section while said temperature difference exists; and

permitting said at least one tubular and said at least one tungsten weight section to reach approximately the same temperature whereby said at least one tubular and said at least one tungsten weight section are secured with respect to each other.

33. The method of claim 32, wherein said step of interconnecting further comprises inserting said at least one tungsten weight section within said at least one tubular.

34. The method of claim 32, wherein said step of interconnecting further comprises inserting said at least one tubular into a bore through said at least one tungsten weight section.

35. A drilling assembly for drilling a bore hole through an earth formation, said drilling assembly comprising:

an outer tubular, said outer tubular having an outer tubular cylindrical wall;

a stabilizer portion formed integrally to said outer tubular extending radially outwardly with respect to said outer tubular cylindrical wall;

a top sub secured with respect to said outer tubular;

a bottom sub secured with respect to said outer tubular; and

an annular high density weight section mounted within said outer tubular, said annular high density weight section comprising material with a specific gravity greater than 10.0.

36. A drilling assembly for drilling a bore hole through an earth formation, a drill bit secured with respect to said drilling assembly, said drilling assembly being secured with respect to a drill pipe string, said drilling assembly being operable for applying drilling weight to said drill bit, said drilling assembly comprising:

a first assembly comprising:

a first outer tubular;

a first top sub secured with respect to said outer tubular;

a first bottom sub secured with respect to said outer tubular;

a first annular high density weight section slidably mounted within said first outer tubular, said first annular high density weight section comprising material with a specific gravity greater than 10.0;

a second assembly comprising:

a second outer tubular;

a second top sub secured with respect to said second outer tubular;

a second bottom sub secured with respect to said second outer tubular;

a second annular high density weight section slidably mounted within said second outer tubular, said second annular high density weight section comprising material with a specific gravity greater than 10.0; and

a threaded connection between said first assembly and said second assembly.

37. The drilling assembly of claim 36, further comprising a weight transfer assembly slidably mounted within said threaded connection for applying a weight of said first annular high density weight section to said a second annular high density weight section.

38. The drilling assembly of claim 37, wherein said weight transfer assembly comprises one or

more tubulars.

39. A drilling assembly for connection within a drilling a well bore through an earth formation with a drill bit, said drilling assembly comprising:

a drill pipe string;

a bottom hole assembly comprising a plurality of weight sections secured to a drilling bit wherein said plurality of weight sections are operable for supplying weight to said drilling bit during drilling; and

a transition element between said drill pipe string and said bottom hole assembly, said transition element comprising:

an outer tubular,

an inner tubular; and

an annular high density weight section comprising tungsten affixed with respect to said outer tubular to thereby absorb vibrations produced within said bottom hole assembly.

40. A drilling assembly in a drill string for drilling an earth formation, said drilling assembly being operable for applying a substantially continuous force on a drill bit during drilling operations to thereby maintain said drill bit in contact with said earth formation, said drilling assembly comprising:

a first outer tubular;

a first force transfer member axially mounted within said first outer tubular and being axially moveable with respect to said first outer tubular;

a first threaded connector secured with respect to said first outer tubular;

a first threaded connector force transfer member mounted for axial movement within and extending through said first threaded connector, said first threaded connector force transfer member being mechanically connected to said first force transfer member for transferring a force through said first threaded connector for application to said drill bit such that said force comprises at least a portion of said substantially continuous force on said drill bit.

41. The drilling assembly of claim 40, wherein said first transfer member comprises an annular weight section having a specific gravity greater than 10.0, said annular weight section creating at least a portion of said force for transfer through said threaded connector by said first threaded connector force transfer member.

42. The drilling assembly of claim 41, further comprising:

a second outer tubular secured with respect to said first threaded connector so as to be positioned closer to said drill bit within said drilling assembly, and

a second force transfer member axially mounted within said second outer tubular and being

axially moveable with respect to said second outer tubular, said second force transfer member being mechanically connected to said first force transfer member and said first threaded connector force transfer member for receiving said force.

43. The drilling assembly of claim 42, further comprising a second threaded connector secured with respect to said second outer tubular, and

a second threaded connector force transfer member mounted for axial movement within and extending through said second threaded connector, said second threaded connector force transfer member being mechanically connected to said second force transfer member for transferring said force through said second threaded connector.

44. The drilling assembly of claim 40, wherein said first outer tubular is connectable to said drilling string so as to hang in tension while said force of said force transfer member is directed downwardly toward said drill bit.

45. The drilling assembly of claim 40, wherein said first force transfer member comprises a tubular construction and further comprises a temperature compensated centralizer for centralizing said first force transfer member within said first outer tubular.